

show the same iridescence in color and position, only the present is less brilliant.

T. sexpunctata (Formosa, Timor). Iridescence on the same plan and visible at the same angles; but with the basal and postmedial areas of fore wing intermediate, blue shading into rose, and hind wing with the rose beyond the p. m. bar stronger, extending to the marginal patch, which latter is almost evenly green.

So far then as these three species are concerned we might modify Janse's key as follows:

- 4a. Basal half of fore wing (viewed at 30 U 90 L; 60 U 90 R or 45 U 90 R; 45 U 90 L) evenly rose to violet except the narrow base and borders; green and brassy iridescence on basal half brighter than rose on outer part of costal area *subacusalis*
- b. Iridescence of basal half of fore wing interrupted by a broad yellow stripe; largely blue or silvery; rose on outer part of costal area stronger than that on base of hind wing 5
- 6a. Iridescence of basal half of fore wing bright, largely blue; iridescent marginal patch of hind wing green; the black immediately before it in the form of a heavy double crescent corresponding to the two marginal dots, *sexpunctalis*
- b. Iridescence of basal half of fore wing pale and silvery; marginal patch of two portions, a small copper one close to margin, and a broader and faintly silvery one before it, bounded on the inner side with a more distant, even and finer brown-black line..... *tolumnalis*

The cordatus-group of *Agabus* (Coleop.: Dytiscidae).

By MELVILLE H. HATCH, University of Washington, Seattle, Washington.

Agabus bjorkmanae nom. nov.

Anisomera recta LeC., Ann. Mag. Nat. Hist. (4) IV, 1869, p. 375.—Crotch, Trans. Amer. Ent. Soc. IV, 1873, p. 424.

Agabus rectus LeC.*—Sharp, On Aquat. Carn. Col. 1880-82, p. 756.

Agabus (Gaurodytes) rectus LeC.—Seidlitz, Verh. Nat. Ver.

* Preoccupied in *Agabus* by *Colymbetes (Agabus) rectus* Babington, Ann. Mag. Nat. Hist. VI, 1841, p. 53, now considered a synonym of *striolatus* Gyll.

Brünn XXV, 1887, p. 84.—Zimmermann, Col. Cat. 71, 1920, p. 171.

Agabus (Hydronebrius) rectus LeC.—Fall, Rev. N. A. Species Agabus, 1922, pp. 1, 3, 9.—Zimmermann, Kol. Rundsch. XX, 1934, p. 152.

This species is sufficiently distinguished from *cordatus* LeC. by Fall, but the pronotum is very variable. One extreme is represented by specimens in which the width of the base is just visibly greater (about one per cent) or barely less (three or four per cent) than the middle, the sides behind the middle nearly straight, not or very slightly sinuate, the hind angles rectangular or nearly so. At the other extreme are specimens in which the width of the base is distinctly less (six to nine per cent) than that of the middle, the sides behind obliquely convergent, the hind angles somewhat obtuse. Were it not for the existence of intermediates, one would scarcely hesitate to recognize two species. The color is usually black, but in one specimen, perhaps from immaturity, the vertex of the head is faintly bimaculate, the sides of the pronotum, the side pieces of the prothorax, the elytral epipleurae, and the apices of the last four abdominal segments are rufescent.

Distribution. BRITISH COLUMBIA: Fernie, Merritt (*Leech*), Van [couver Is.] (*type*). ALBERTA: Beaver Cr. (*Leech*), Happy Valley (*Lane, Leech*). WASHINGTON: Blue Mts. (Copei Cr., Mill Cr.), Wawawai (*Fall*). IDAHO: Troy (*Lane*), Waha. OREGON: Kamela, Meachem.

I am renaming this species after Miss Frances Bjorkman, the collection by whom at Fernie, British Columbia, of a series with extremely obtuse posterior pronotal angles brought the variable nature of the species to my attention.

In view of the extreme form assumed by certain specimens of this species, it will be necessary to insert "usually" between "prothorax" and "narrower" in the first line of Fall's key (l. c., p. 3) so that it reads "Prothorax usually narrower at base than near middle."

AGABUS CORDATUS LeC.

Anisomera cordata LeC., Proc. Acad. Nat. Sci. VI., 1853, p. 226; Col. Kansas 1859, p. 5, pl. 2, fig. 3.—Crotch, Trans. Amer. Ent. Soc. IV, 1873, p. 424.

Agabus (Anisomera) cordatus LeC.—Sharp, On Aquat. Carn. Col. 1880-82, p. 494, pl. xiii, fig. 165.

Agabus (Gaurodytes) cordatus LeC.—Seidlitz, Verh. Nat. Ver. Brünn XXV, 1887, p. 84.—Zimmermann, Col. Cat. 71, 1920, p. 163.

Agabus (Hydronebrius) cordatus LeC.—Fall, Rev. N. A. Species Agabus 1922, pp. 1, 3, 9.—Zimmermann, Kol. Rundsch. XX, 1934, p. 152.

The pronotum of this species is strongly cordate, the width at the base being five-sixths or less that at the middle. The hind angles vary from slightly acute to somewhat obtuse, usually being nearly rectangular, with the sides in front of the hind angles usually subparallel for an appreciable distance before curving out. In one of a pair of specimens from Colorado Springs, Colo., however, the sides curve out almost immediately from the hind angles. The color is usually piceous, as Fall describes, but I have seen a nearly black specimen from Mt. Lemon, Ariz.

Distribution. MONTANA: Missoula (*Fall*); COLORADO: Colorado Springs and Leadville (*Fall*), Morley (*Cal. Acad.*); NEW MEXICO: Santa Fe (*type*), Pecos (*Fall*); ARIZONA: Mt. Lemon (*Cal. Acad.*); UTAH: Ft. Douglas (*Fall*), Salt Lake; WASHINGTON: Longmires = ?Longmire (*Cal. Acad.*).

Fall and Zimmermann have suggested that *cordatus* and *reccatus* belong in the subgenus *Hydronebrius* Jakovl., but this subgenus is distinguished in important measure not only by the subcordate pronotum but by the absence of setae from the inner apical angle of the lower surface of the metafemora and the irregularly punctuate lower surface of the metatibiae. As regards the metafemora, both of the species possess the setae said to be absent in *Hydronebrius*. The condition of the metatibiae is more ambiguous, but is nearly similar to a species like *seriatus* Say, which no one would suggest placing in *Hydronebrius*. Furthermore Zimmermann (l. c., pp. 156-158) notes numerous Palaearctic species of the subgenus *Gaurodytes* in which the sides of the pronotum are convergent behind, so that the precise placing of the interesting Nearctic species here considered must await future study.

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